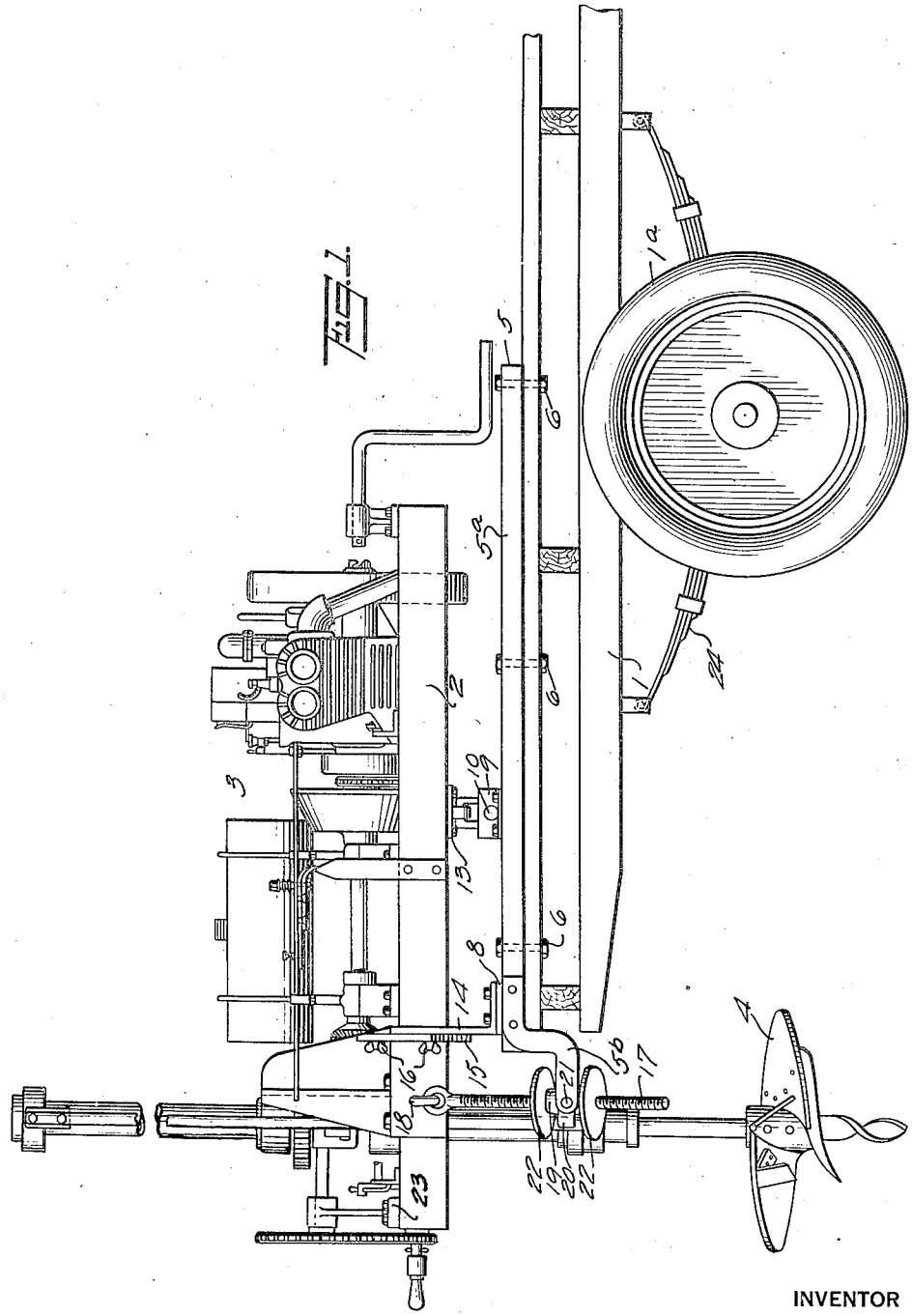
Aug. 10, 1926. 1,595,851

H. S. BROWN

ADJUSTABLE FLEXIBLE MOUNTING FOR EARTH BORING MACHINES AND THE LIKE

Filed Nov. 5, 1925 2 Sheets-Sheet 1

Fig. 1.



INVENTOR

Hugh S. Brown

BY Wallace Smith

ATTORNEY

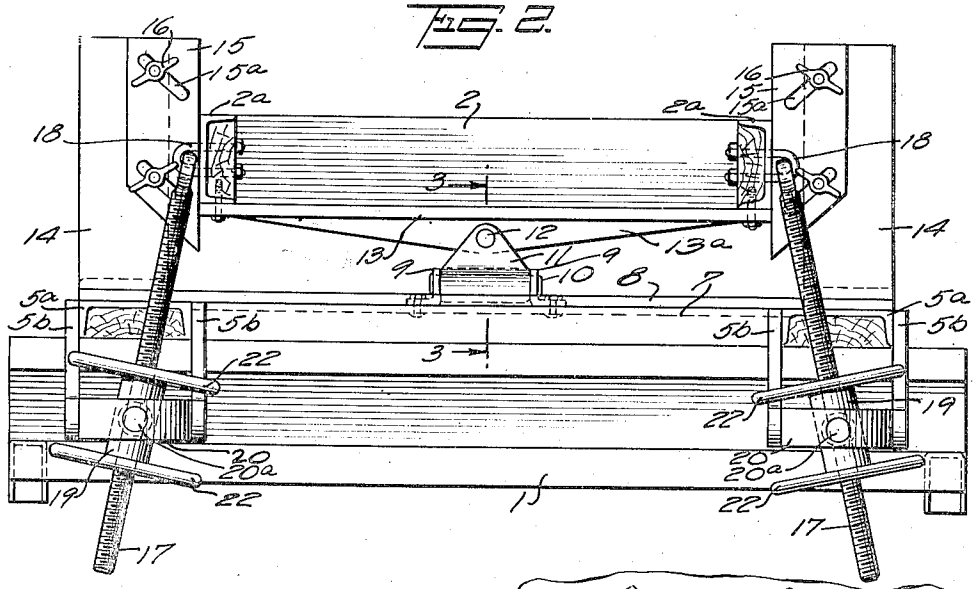
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FIG. 2.



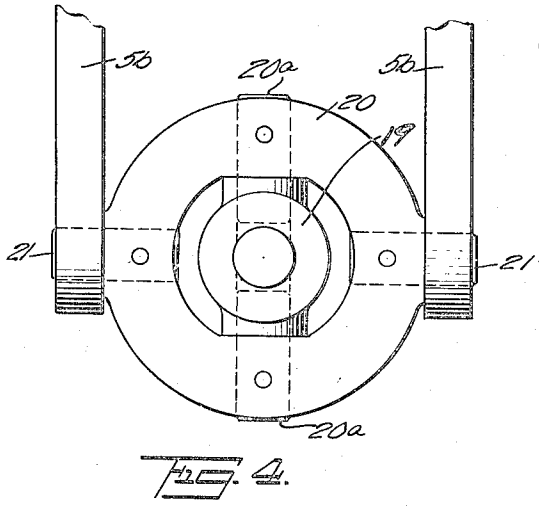


FIG. 4.

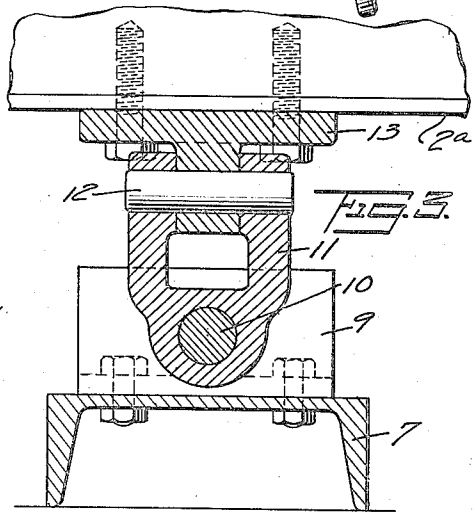


FIG. 3.

INVENTOR

Hugh S. Brown

BY R. Barbour

ATTORNEY

Patented Aug. 10, 1926. 1,595,851

UNITED STATES PATENT OFFICE.

HUGH STEWART BROWN, OF ROSELLE PARK, NEW JERSEY, ASSIGNOR TO THE HUBRON COMPANY, INC., A CORPORATION OF NEW JERSEY.

ADJUSTABLE FLEXIBLE MOUNTING FOR EARTH-BORING MACHINES AND THE LIKE.

Application filed November 5, 1925. Serial No. 66,922.

This invention relates generally to the production of a flexible adjustable mounting for any given type of machine but is more specifically designed to produce simple and convenient apparatus for mounting an earth boring machine, commonly called a post-hole digger, upon the floor of any ordinary motor truck so that the machine may be conveniently transported from the location of one post-hole to that of another and put into operation without dismounting it from the conveying truck. To this end, the invention in its preferred form comprises an adjustable, 3-point, suspension mechanism, adapted to carry the power-driven earth boring auger and to be mounted upon the floor of any desired motor truck.

The best form of apparatus embodying my invention at present known to me is illustrated in the accompanying two sheets of drawings in which:

Fig. 1 is a side elevation of the rear end of a motor truck with an earth boring machine mounted thereon.

Fig. 2 is an end view of the supporting mechanism embodying the essential features of the invention.

Fig. 3 is a detail vertical section on line 3—3 of Fig. 2, showing one of the universal joints on a larger scale, and

Fig. 4 is a detail plan view on an enlarged scale of another universal joint.

Throughout the drawings like reference characters indicate like parts. 1 represents the rear end of a motor truck body, mounted on the usual springs 24, supported by wheels one of which is shown at 1^a. 3 represents generally a machine driven by a gas engine and adapted to rotate, raise and lower the earth boring auger 4. The machine here illustrated is fully described in my pending application Serial No. 696,215, filed March 1, 1924, but other forms of machine could of course be substituted for this preferred form.

2 represents generally the chassis for supporting the earth boring machine, such chassis comprising the two channel beams 2^a, 2^a, which may have their channels wood-filled as shown in Fig. 2, and be held together by any desired number of cross members, two of which are shown at 13 and 23. 5 is a sub-frame on which the chassis is flexibly and adjustably mounted. The machine, chassis and sub-frame form a removable unit which can be bolted or otherwise fastened to the floor of any motor truck as by the bolts 6, 6.

The particular form of sub-frame here illustrated comprises two channel irons 5^a, 5^a, which may have their channels wood-filled as shown in Fig. 2, and which are held together by cross beams 7 and 8, while their rear ends are provided with downwardly hanging goose-necks 5^b, 5^b.

The chassis 2 is mainly supported by a universal joint mechanism located approximately under the center of gravity of the chassis and machine. The preferred form of this universal-joint illustrated in the drawings comprises the base member 9 bolted to beam 7, the short shaft 10 mounted in upwardly extending flanges on said base member, a knuckle, or floating member 11 pivoted on shaft 10, a second short shaft 12 mounted in said member 11 and extending at right angles to the shaft 10, and the cross beam 13 bolted to the chassis channel beams 2^a, 2^a, which cross beam has a downwardly projecting rib 13^a through which the shaft 12 passes, thereby completing this universal-joint member forming the main support for the chassis and the machine.

14, 14 are uprights mounted on the sub-frame beams 5^a, 5^a and located on either side of the rear end of the chassis but not in contact therewith. 15, 15 are movable plates connected to the uprights 14, 14 by wing-nuts 16, 16 screwing into the latter and passing through inclined slots 15^a, 15^a, in the plates 15 so that, when the wing-nuts are loosened, the plates 15, 15, will drop into contact with the sides of the chassis and can then be clamped in such position and thereafter act as chocks or side supports for said chassis.

The rear end of the chassis receives vertical support from a pair of threaded shafts or struts 17, 17 which are flexibly connected to the chassis, as by means of the staples 18, 18 mounted in the side beams 2^a, 2^a. The lower ends of these strut shafts pass through sleeves 19, 19 which have adjustable universal-joint mountings in the goose-necks 5^b, 5^b. The preferred form of the adjustable universal-joint mounting for each sleeve 19 comprises a larger ring 20, (best shown in Fig. 4) having inwardly projecting short shafts 20^a mounted therein and engaging recesses in sleeve 19, and outwardly project-

ing short shafts 21, 21 extending at right angles to the shafts 20^a and journaled at their extremities in one of the goose-necks 5^b. 22, 22, are hand-wheel nuts mounted on the strut shaft 17 and engaging the swiveled sleeve 19 on either side.

The mode of operating my invention is as follows: The earth boring machine being mounted upon the truck floor as shown in Fig. 1, the truck is driven to the place of operation and stopped with the auger 4 over the location of the hole which is to be bored in the earth. The wing-nuts 16 are loosened so as to free the chock plates 15 and the hand-wheel nuts 22 are screwed up or down so as to raise or lower the rear end of the chassis 2 and cant it to one side or the other sufficiently to give the earth auger the desired direction which is to be given to the post-hole to be dug. Usually, of course, these holes are dug in a vertical direction and the foregoing described adjustment is only necessary to compensate for any variation from the horizontal plane which the truck body may have, due either to the construction of the truck, or to the inequalities of the surface of the ground upon which the truck stands. However, a considerable inclination of the auger in any direction may be secured if the hole is to be bored along other than a vertical line. When this desired adjusted position of the auger is secured in the manner above described, the chassis is clamped in that position by setting up hand wheel nuts 22 firmly against the swiveled sleeves 19, and the chock plates 15, 15 are forced down snugly against the sides of the chassis 2 and the wing-nuts 16 are screwed down to clamp plates 15 in this position. The earth boring machine is then operated in any desired manner to dig the hole to any desired depth, the auger is withdrawn when the hole is completed, the truck driven to the location of the next hole, any necessary readjustment of the position of the chassis there required is effected in the manner previously described, and the operation repeated.

Among the advantages of the invention may be mentioned its complete unitary structure by which it may be readily and conveniently transferred to, and installed upon, any standard form of truck having a floor of the necessary area, the absolute flexibility of the mounting during the process of adjustment of the auger, and its absolute rigidity in the adjusted position during the boring operation, whereby all vibration or motion of the machine with reference to the truck body is prevented at that time. Also the elasticity of the truck springs and tires serves a useful purpose in permitting the auger and machine, as a whole, to yield and move slightly whenever stones or other obstacles to the progress of the boring operation are encountered.

It is obvious that the herein described apparatus constitutes in effect an adjustable, flexible 3-point suspension for the earth boring machine as a whole, the universal-joint first described being located at the apex of a triangle, while the other two universal-joints, which are adjustably connected to the chassis, are located along the base of such triangle.

Having described my invention, I claim:

1. A portable apparatus for mounting an earth boring machine or the like on a suitable foundation, such as the floor of a motor truck, which apparatus comprises the combination of a sub-frame adapted to be fastened to such foundation, a chassis on which the machine may be mounted, a universal joint mechanism, one member of which is mounted on said sub-frame while the other is fastened to the under side of said chassis, two other universal joint mechanisms also mounted on said sub-frame along the base of a triangle at the apex of which the first mentioned universal joint mechanism is located, and independently adjustable connections from said last mentioned universal joint mechanism to said chassis whereby, when said sub-frame has been clampd to the floor of any ordinary motor truck, said chassis can be quickly adjusted at various angles to the plane of the horizon, whatever the inclination of the motor truck floor may be.

2. A combination such as described in claim 1 in which the two last mentioned universal joint mechanisms and connections each comprises a sleeve universally mounted on the sub-frame, a threaded rod extending through said sleeve and connected to the chassis by a universal joint, and two nuts mounted on said rod, one on either side of said sleeve and adapted to clamp the same between them.

3. In an apparatus of the character described comprising a sub-frame, a chassis, and a plurality of adjustable, universal joint supporting connections from said sub-frame to said chassis, the combination, with said above described apparatus, of a pair of members on the sub-frame extending up along either side of said chassis but spaced slightly away therefrom, a pair of plates each horizontally adjustable with reference to one of said members and to said chassis, and means for clamping said plates in positions in which they are in contact with both said chassis and said members.

4. In an apparatus of the character described comprising a sub-frame, a chassis, and three universally mounted supporting connections from said sub-frame to said chassis, two of which connections are vertically adjustable, the combination, with

said above described apparatus, of a pair of rigid, upright members on said sub-frame extending up alongside said chassis adjacent said adjustable connections, a plate mounted on each of said uprights and adjustable thereon toward or from said chassis, and means for clamping said plate in different positions of such adjustment whereby the lateral movement of said chassis may be limited; said clamping means comprising inwardly and downwardly inclined slots in said plates and threaded bolts passing through said slots and anchored in said uprights.

5. A portable apparatus for mounting an earth boring machine or the like on a suitable foundation, such as the floor of a motor truck, which apparatus comprises the combination of a sub-frame, adapted to be fastened to such foundation, comprising side pieces extending beyond the truck floor at a lower level, a chassis on which such machine may be mounted, a universal joint mechanism connecting said chassis and sub-frame at a point adjacent the center of gravity of the assembled chassis and machine, and two adjustable, flexible connections from the before mentioned projecting portions of said sub-frame to adjacent portions of the chassis.

6. The combination, with a motor truck having a body with a floor adapted to carry general merchandise, of a portable frame adapted to be bolted to said floor, a chassis, an earth boring mechanism mounted on said chassis and having its boring tool suspended from the rear of said truck body, and adjustable, universal joint mechanism connecting said chassis with said portable frame, whereby said boring tool may be adjusted at widely varying angles to the plane of the horizon, whatever the inclination thereto of said truck body floor.

HUGH STEWART BROWN.